

Claims

Claim:

1. A method of treating photoeradication of cells comprising the steps of:
identifying an area of infection or an area of sterilization or an area of cancer cell activity;
applying a concentration including a combination of a surfactant and a photosensitizing dye compound to the area of infection or the area of sterilization or the area of cancer cell activity; and
exposing the area of infection or the area of sterilization or the area of cancer cell activity with a light having a light wavelength, light dosage and a light dosage rate.
2. The method of photoeradication of cells of claim 1 wherein the light wavelength ranges from about 400 nm to about 800 nm, the light dosage ranges from about 10 J/cm² to about 100 J/cm² and the light dosage rate ranges from about 50 mw/cm² to about 200 mw/cm².
3. The method of photoeradication of cells of claim 1 wherein the wavelength ranges from about 600 nm to about 700 nm.
4. The method of photoeradication of cells of claim 1 wherein the photosensitizing dye is methylene blue.
5. The method of photoeradication of cells of claim 4 wherein a concentration range of the methylene blue is from about 5 µg/ml to about 100 µg/ml.
6. The method of photoeradication of cells of claim 1 wherein the application of the concentration is a topical application.
7. The method of photoeradication of cells of claim 1 wherein the surfactant is either polymixin B or SDS, or combinations thereof.
8. The method of photoeradication of cells of claim 1 wherein the application of the concentration is achieved via one or more of the group containing an intravenous injection, an intratumor injection, a subcutaneous injection, and a peritumoral injection.

9. A photodynamic therapy treatment kit comprising:

a volume of a concentration including a combination of a surfactant and a photosensitizing dye compound; and

a light emitting treatment device configured to emit light at wavelengths ranging from about 450nm to about 850nm; to provide a dosage rate ranging from about 0 to about 150 mw/cm² and a light dose ranging from 0 to about 300 J/cm².

10. A method of treatment comprising:

providing one or more cells;

disposing a concentration in proximity to the one or more cells, said concentration including a combination of a surfactant and a photosensitizing dye compound on the one or more cells;

applying a light in proximity to the one or more cells, said light having a wavelength ranging from about 450nm to about 850nm; a dosage rate ranging from about 0 to about 150 mw/cm²; and a light dose ranging from 0 to about 300 J/cm², wherein the combination of the light and the surfactant and the dye compound is adapted to cause intracellular enzyme deactivation of the one or more cells.

11. The method of treatment of claim 10 wherein the step of disposing the concentration is achieved via one or more of the group containing: an intratumor injection, an intravenous injection, a topical application, and a peritumoral injection.

12. The method of treatment of claim 10 wherein the one or more cells include at least one of a bacteria, a fungus, a virus, or a cancer cell.

13. The method of treatment of claim 10 wherein the one or more cells are gram positive or gram negative.

14. The method of treatment of claim 10 wherein the dye compound is at least one of methylene blue, toluidene blue, or combinations thereof.

15. The method of treatment of claim 10 wherein the dye compound is monomeric or dimeric.
16. The method of treatment of claim 10 wherein the step of providing one or more cells is associated with a sterilization procedure.
17. The method of treatment of claim 10 wherein the step of providing one or more cells is associated with treatment of an infection at a tissue site.
18. The method of treatment of claim 10 wherein the step of providing one or more cells includes providing one or more of a fungus or a virus or a cancer cell.

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